

REMARKS

The Office Action dated July 13, 2005, has been received and carefully considered. Reconsideration of the outstanding rejections in the present application is respectfully requested based on the following remarks.

I. THE OBVIOUSNESS REJECTION OF CLAIMS 1-17, 31, AND 33-36

On pages 2-9 of the Office Action, claims 1-17, 31, and 33-36 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Bears (U.S. Patent No. 5,349,457). This rejection is hereby respectfully traversed.

As stated in MPEP § 2143, to establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Also, as

stated in MPEP § 2143.01, obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. In re Mills, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). Further, as stated in MPEP § 2143.03, to establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). That is, "[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art." In re Wilson, 424 F.2d 1382, 165 USPQ 494, 496 (CCPA 1970). Additionally, as stated in MPEP § 2141.02, a prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. W.L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984). Finally, if an independent

claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Regarding claim 1, the Examiner asserts that the claimed invention would have been obvious in view of Bears. However, it is respectfully submitted that Bears fails to claim, disclose, or even suggest dual optical switch fabric modules coupled to transmit signals to and receive signals from subscriber service modules and including a first switch fabric module and a second switch fabric module, as presently claimed. Indeed, Bears explicitly discloses an electrical based multiplexer/demultiplexer (e.g., 60) and electrical/optical converters (e.g., 54, 58) in the disclosed fiber service terminals (FST), thereby precluding the use of any optical switching means. Despite this clear disclosure by Bears, the Examiner asserts that Bears teaches optical switching in Figure 8. However, similar to Figure 4, Figure 8 also shows a fiber service terminal (FST) with an electrical-based multiplexer/demultiplexer (i.e., MUX) and electrical/optical converters (i.e., EOM), as well as an electrical-based dual TX/RX switch plane, thereby precluding the use of any optical switching means. The Examiner specifically points to column 8, lines 10-12, for a teaching that the disclosed dual TX/RX switch

plane reroutes multiplexed optical signals over unaffected fibers. However, a fair and clear contextual reading of column 8, lines 10-12, reveals that multiplexed optical signals are routed over a non-faulted single mode fiber via an optical transmitter (i.e., TX) and an electrical/optical converter (i.e., EOM) after being electrically switched in the electrical-based dual TX/RX switch plane to compensate for a fault in another single mode fiber. Accordingly, it is respectfully submitted that Bears fails to claim, disclose, or even suggest the claimed invention, and thus the claimed invention is not unpatentable over Bears.

Claims 2-17 are dependent upon independent claim 1. Thus, since independent claim 1 should be allowable as discussed above, claims 2-17 should also be allowable at least by virtue of their dependency on independent claim 1. Moreover, these claims recite additional features which are not claimed, disclosed, or even suggested by the cited references taken either alone or in combination. Indeed, the Examiner acknowledges the shortcomings of Bear with respect to several of these claims (e.g., claims 2-4, 7, 10, 13, and 15), but still asserts that such shortcomings are inherent and/or well known. However, as stated in MPEP § 2112, "In relying upon the theory of inherency, the examiner must provide a basis in fact and/or

technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." Ex parte Levy, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original). The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. In re Rijckaert, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993). Also, there is no support in the record for the Examiner's conclusions that certain identified features are "old and well known." In accordance with MPEP § 2144.03, the Examiner must cite a reference in support of his positions. Additionally, claim 8 recites that the modular switch comprises at least one subscriber service module and a plurality of subscriber service module slots. The Examiner asserts that Bears must teach these elements since Bears shows a fiber service terminal (FST) connected to a subscriber. However, Bears explicitly teaches away from having such elements in its fiber service terminal (FST) and asserts that such capability is better located elsewhere at the subscriber (e.g., HOT) (see column 6, line 68, to column 7, line 6). As stated in MPEP § 2141.02, a prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed

invention. W.L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984). Accordingly, it is respectfully submitted that Bears fails to claim, disclose, or even suggest the claimed invention, and thus the claimed invention is not unpatentable over Bears.

Regarding claim 31, the Examiner asserts that the claimed invention would have been obvious in view of Bears. However, it is respectfully submitted that Bears fails to claim, disclose, or even suggest optically switching and aggregating a received signal, as presently claimed. Indeed, Bears explicitly discloses an electrical-based multiplexer/demultiplexer (e.g., 60) and electrical/optical converters (e.g., 54, 58) in the disclosed fiber service terminals (FST), thereby precluding the use of any optical switching means. Despite this clear disclosure by Bears, the Examiner asserts that Bears teaches optical switching in Figure 8. However, similar to Figure 4, Figure 8 also shows a fiber service terminal (FST) with an electrical-based multiplexer/demultiplexer (i.e., MUX) and electrical/optical converters (i.e., EOM), as well as an electrical-based dual TX/RX switch plane, thereby precluding the use of any optical switching means. The Examiner specifically points to Figure 8 for a teaching that the disclosed dual TX/RX

switch plane reroutes multiplexed optical signals over unaffected fibers. However, a fair and clear contextual reading of Figure 8 and its corresponding specification disclosure reveals that multiplexed optical signals are routed over a non-faulted single mode fiber via an optical transmitter (i.e., TX) and an electrical/optical converter (i.e., EOM) after being electrically switched in the electrical-based dual TX/RX switch plane to compensate for a fault in another single mode fiber. Accordingly, it is respectfully submitted that Bears fails to claim, disclose, or even suggest the claimed invention, and thus the claimed invention is not unpatentable over Bears.

Claims 33-36 are dependent upon independent claim 31. Thus, since independent claim 31 should be allowable as discussed above, claims 33-36 should also be allowable at least by virtue of their dependency on independent claim 31. Moreover, these claims recite additional features which are not claimed, disclosed, or even suggested by the cited references taken either alone or in combination. Indeed, the Examiner acknowledges the shortcomings of Bear with respect to several of these claims (e.g., claim 34), but still asserts that such shortcomings are inherent and/or well known. However, as stated in MPEP § 2112, "In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning

to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." Ex parte Levy, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original). The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. In re Rijckaert, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993). Also, there is no support in the record for the Examiner's conclusions that certain identified features are "old and well known." In accordance with MPEP § 2144.03, the Examiner must cite a reference in support of his positions. Accordingly, it is respectfully submitted that Bears fails to claim, disclose, or even suggest the claimed invention, and thus the claimed invention is not unpatentable over Bears.

In view of the foregoing, it is respectfully requested that the aforementioned obviousness rejection of claims 1-17, 31, and 33-36 be withdrawn.

II. THE OBVIOUSNESS REJECTION OF CLAIMS 18-30 AND 32

On pages 2-9 of the Office Action, claims 18-30 and 32 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Bears (U.S. Patent No. 5,349,457) in view of Kimbrough et al.

(U.S. Patent No. 6,362,908). This rejection is hereby respectfully traversed.

Regarding claim 18, the Examiner asserts that the claimed invention would have been obvious in view of Bears and Kimbrough et al. However, it is respectfully submitted that Bears and Kimbrough et al., either alone or in combination, fail to claim, disclose, or even suggest a modular switch comprising dual optical trunking modules, dual optical switch fabric modules, and a plurality of subscriber service modules, wherein the dual optical trunking modules are coupled to at least one of the dual optical switch fabric modules and the dual optical switch fabric modules are coupled to the subscriber service modules, as presently claimed. Indeed, Bears explicitly discloses an electrical-based multiplexer/demultiplexer (e.g., 60) and electrical/optical converters (e.g., 54, 58) in the disclosed fiber service terminals (FST), thereby precluding the use of any optical switching means. Kimbrough et al. also explicitly discloses only electrical-based switching means. Additionally, claim 18 recites that the modular switch comprises a plurality of subscriber service module. The Examiner asserts that Bears must teach these elements since Bears shows a fiber service terminal (FST) connected to a subscriber. However, Bears explicitly teaches away from having such elements in its fiber

service terminal (FST) and asserts that such capability is better located elsewhere at the subscriber (e.g., HOT) (see Figure 5; and column 6, line 68, to column 7, line 6). As stated in MPEP § 2141.02, a prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. W.L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984). Accordingly, it is respectfully submitted that Bears and Kimbrough et al., either alone or in combination, fail to claim, disclose, or even suggest the claimed invention, and thus the claimed invention is not unpatentable over Bears in view of Kimbrough et al.

Claims 19-30 are dependent upon independent claim 18. Thus, since independent claim 18 should be allowable as discussed above, claims 19-30 should also be allowable at least by virtue of their dependency on independent claim 18. Moreover, these claims recite additional features which are not claimed, disclosed, or even suggested by the cited references taken either alone or in combination. Indeed, the Examiner acknowledges the shortcomings of Bear with respect to several of these claims (e.g., claims 20, 21, 24, and 27), but still asserts that such shortcomings are inherent or well known.

However, as stated in MPEP § 2112, "In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." Ex parte Levy, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original). The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. In re Rijckaert, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993). Also, there is no support in the record for the Examiner's conclusions that certain identified features are "old and well known." In accordance with MPEP § 2144.03, the Examiner must cite a reference in support of his positions. Accordingly, it is respectfully submitted that Bears and Kimbrough et al., either alone or in combination, fail to claim, disclose, or even suggest the claimed invention, and thus the claimed invention is not unpatentable over Bears in view of Kimbrough et al.

Claim 32 is dependent upon independent claim 31. Thus, since independent claim 31 should be allowable as discussed above, claim 32 should also be allowable at least by virtue of its dependency on independent claim 31. Moreover, this claim recites additional features which are not claimed, disclosed, or

even suggested by the cited references taken either alone or in combination. Accordingly, it is respectfully submitted that Bears and Kimbrough et al., either alone or in combination, fail to claim, disclose, or even suggest the claimed invention, and thus the claimed invention is not unpatentable over Bears in view of Kimbrough et al.

In view of the foregoing, it is respectfully requested that the aforementioned obviousness rejection of claims 18-30 and 32 be withdrawn.

III. CONCLUSION

In view of the foregoing, it is respectfully submitted that the present application is in condition for allowance, and an early indication of the same is courteously solicited. The Examiner is respectfully requested to contact the undersigned by telephone at the below listed telephone number, in order to expedite resolution of any issues and to expedite passage of the present application to issue, if any comments, questions, or suggestions arise in connection with the present application.

To the extent necessary, a petition for an extension of time under 37 CFR § 1.136 is hereby made.

Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to

Patent Application
Attorney Docket No.: 57983.000039
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Deposit Account No. 50-0206, and please credit any excess fees
to the same deposit account.

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APPENDIX A

1 (Previously Presented). A modular switch comprising:

fiber and power access ports for receiving and distributing physical signal and power connection media;

dual optical switch fabric modules coupled to transmit signals to and receive signals from subscriber service modules and including a first switch fabric module and a second switch fabric module;

dual optical trunking modules coupled to transport switched signals between the dual optical switch fabric modules and a service provider optical network, the optical trunking modules providing optical transport distance and redundancy and include a first trunking module and a second trunking module; and

at least one service signal port coupled to the dual optical trunking modules, via the dual optical switch fabric modules, to transmit and receive signals and provide access to a subscriber.

2 (Original). The modular switch of claim 1 wherein the dual optical trunking modules each comprise one or more 1 gigabit Ethernet trunk optic cards or one or more 10 gigabit Ethernet optics cards.

3 (Previously Presented). The modular switch of claim 1 wherein the dual optical switch fabric modules each comprise 32 Gbps or higher switch fabrics.

4 (Original). The modular switch of claim 1 wherein the switch fabric modules support at least one of ethernet switching, Internet Protocol routing, Multiprotocol Label Switching, and Resilient Packet Ring.

5 (Original). The modular switch of claim 1 further comprising an environmentally hardened outdoor housing.

6 (Previously Presented). The modular switch of claim 1 wherein the dual optical trunking modules, the dual optical switch fabric modules, and other component parts of the modular switch, including subscriber service modules and power supplies, comprise environmentally hardened optical and electrical components.

7 (Original). The modular switch of claim 6 wherein the optical and electrical components have an operating temperature range of about -40 degrees Celsius to 60 degrees Celsius.

8 (Previously Presented). The modular switch of claim 1 further comprising at least one subscriber service module and a plurality of subscriber service module slots, the at least one subscriber service module interfacing between one or more subscriber end points and the dual optical switch fabric modules and comprising at least one subscriber signal port, each subscriber service module slot configured to receive one of the at least one subscriber service module.

9 (Original). The modular switch of claim 8 further comprising a plurality of subscriber service modules, with each subscriber service module slot receiving a different subscriber service module.

10 (Original). The modular switch of claim 8 further comprising a plurality of subscriber service modules wherein the subscriber service modules collectively provide access to ninety-six homes.

11 (Previously Presented). The modular switch of claim 1 further comprising a subscriber service module wherein the subscriber service module is coupled to one or both of the dual optical trunking modules, via one or both of the dual optical switch fabric modules, providing network connectivity for

subscriber signal ports contained in the subscriber service module.

12 (Original). The modular switch of claim 11 wherein the subscriber service module comprises multiple single mode, single fiber, environmentally hardened optical transceivers serving as subscriber signal ports.

13 (Original). The modular switch of claim 1 wherein the first optical trunking module transports signals in one direction and the second optical trunking module transports signals in a different direction, each optical trunking module using one or more fibers.

14 (Original). The modular switch of claim 13 wherein the optical trunk connections comprise one of a layer 2 link aggregation and a layer 3 link aggregation to enable both route and equipment protection.

15 (Original). The modular switch of claim 13 wherein the fiber access ports used by the dual optical trunking modules receive signals from and transmit signals to a ring network architecture.

16 (Original). The modular switch of claim 1 wherein the subscriber access comprises a point to point connection.

17 (Previously Presented). The modular switch of claim 1 wherein the dual optical switch fabric modules are coupled to transmit signals to and receive signals from at least one of the dual optical trunking modules, the dual optical switch fabric modules further providing at least one of signal switching, routing, traffic aggregation, and redundancy.

18 (Previously Presented). An optical network comprising:
a network transmitting a signal;
a router coupled to the network to route the signal;
an environmentally hardened modular switch coupled to the router and subscriber end points, the modular switch receiving signals from the router and the subscriber end points to provide point to point subscriber access; and

a fiber access box at a destination coupled to the modular switch with the fiber access box receiving signals from and transmitting signals to the modular switch;

wherein the modular switch comprises dual optical trunking modules, dual optical switch fabric modules, and a plurality of subscriber service modules, the dual optical trunking modules

coupled to at least one of the dual optical switch fabric modules and the dual optical switch fabric modules coupled to the subscriber service modules.

19 (Original). The optical network of claim 18 wherein the modular switch performs at least one of fully redundant switching, aggregation, quality of service classification, and signal transport between the subscriber and the service provider network.

20 (Original). The optical network of claim 18 wherein the network, the router, and the modular switch are coupled through ring architectures.

21 (Original). The optical network of claim 18 further comprising one or more pedestals coupled between the modular switch and the fiber access box, the pedestal providing a fiber breakout point coupling the fiber access box to the modular switch.

22 (Previously Presented). The optical network of claim 21 further comprising a fiber distribution device coupled to the modular switch wherein the pedestal provides a fiber breakout

point coupling the fiber access box to the modular switch through the fiber distribution device.

23 (Original). The optical network of claim 18 wherein the fiber access box comprises an optical to electrical conversion unit.

24 (Original). The optical network of claim 18 wherein the fiber access box comprises a voice over Internet protocol media gateway.

25 (Original). The optical network of claim 18 further comprising intelligent home networking equipment coupled to the fiber access box, the home networking equipment located within a subscriber premise.

26 (Original). The optical network of claim 18 wherein the fiber access box comprises a plurality of fiber access boxes.

27 (Original). The optical network of claim 18 further comprising an environmentally hardened fiber splice cabinet coupled between the modular switch and one or more fiber access boxes, the fiber splice cabinet providing a fiber splice point between subscriber optical service cables and multiple fiber

trunk cables used for connecting fiber access boxes to the modular switch, the subscriber optical service cables mating with subscriber service ports on the subscriber service modules.

28 (Original). The optical network of claim 27 wherein the environmentally hardened fiber splice cabinet includes multiple fiber access ports for one or more fiber trunk cables and one or more subscriber service cables.

29 (Original). The optical network of claim 27 wherein the fiber access ports of the environmentally hardened fiber splice cabinet comprise one or more fiber access ports accommodating one of one 96 fiber cable, two 48 fiber cables, four 24 fiber cables, eight 12 fiber cables, and one 72 fiber cable plus one 24 fiber cable.

30 (Original). The optical network of claim 18 wherein the router comprises an internet protocol router.

31 (Previously Presented). A method of providing a signal to a destination comprising:

receiving a signal in one of two optical trunking modules;
transmitting the received signal to one or two dual optical

switch fabric modules;

optically switching and aggregating the received signal;
providing quality of service for the switched signal;
transmitting the switched signal to one of several
subscriber service ports contained on subscriber service
modules; and

transmitting the switched signal from the one of the
several subscriber service ports to a subscriber fiber access
box of a destination.

32 (Original). The method of claim 31 further comprising
receiving the signal from a network and routing the signal to
the switch.

33 (Original). The method of claim 31 further comprising
converting the signal from an optical signal to an electrical
signal in the subscriber fiber access box.

34 (Original). The method of claim 31 wherein transmitting the
switched signal from the one of the several subscriber service
ports to the subscriber fiber access box is comprises
transmitting the switched signal to the subscriber fiber access
box through an optical splice cabinet and a fiber breakout point

housed in a pedestal.

35 (Original). The method of claim 34 wherein transmitting the switched signal through the pedestal to the subscriber fiber access box comprises transmitting the switched signal through the pedestal to one of a plurality of subscriber fiber access boxes.

36 (Original). The method of claim 34 wherein transmitting the switched signal through the pedestal to the subscriber fiber access box comprises transmitting the switched signal through one or more pedestals to one or more subscriber fiber access boxes.